SU2POV v3.4 for SketchUp v7 (Free and Pro)

D. Bur, August 2010

Freeware exporter for Persistence Of Vision raytracer

Su2pov logo by M. Horner

User Guide

Version 3.4 changes:

- Simplified interface of su2pov settings: outdoor/indoor radio buttons, quality slider added, less defaults finishes, brightness slider added, tweaked the radiosity settings to make the rendering slightly faster,
- FaceMe components: better conversion to make alpha channel of images completely invisible,
- Lights: 6 colors of lights added, cast shadows checkbox added
- Image settings: more images sizes, 16:9 ratio added, bugs in radio buttons fixed
- Materials: custom finish removed, 24 presets added, 36 surfaces aspects added
- Save as dialog added
- SkyBox (panoramic background image) added.

--- SU2POV is freeware ---

Foreword:
This is an update of the previous version su2pov 3.3. which itself was a patch to 3.2. that had some glitches, issues, bugs... Although this is not a major release, some enhancements have been done to simplify the material editor in particular.

Since v3.3 su2pov can run with Google SketchUp v7 (and v6 too), both free and Pro versions and is also Mac compatible. A new toolbar is also available (5 icons to keep it simple), and Web Dialogs have been designed. All rendering, image and materials parameters are also retained across sessions.

Su2pov has ben developed to be as simple as possible for the user: prepare your scene in SketchUp, one click, and render it. So, many features are automatic, with some drawbacks but if you know Pov-Ray's syntax, it is quite easy to tweak the pov scene, once exported (Pov-Ray's help is quite extensive and well organized).

In this Quick Start Guide I want to show how easy it is to render your day or night scenes using only SketchUp tools and icons to set up the render.
Don't expect sophisticated renderings like Kerkythea's renders, Indogo's, V-Ray's or Artlantis, although you can achieve very acceptable and decent renders with Pov-Ray in a few seconds.

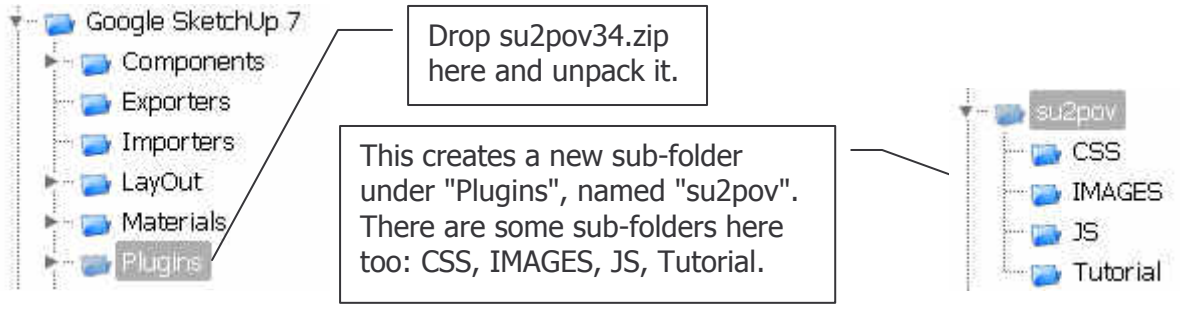
Main features:

- User-friendly interface, simple to use,
- SketchUp scene support: ground, solid or gradient background, skybox, fog,
- render mode and image settings,
- Perspective, orthographic, cylindrical/spherical/fish-eye camera,
- Sun light, point lights, spot lights,
- Automatic coloring and intensity of sun light and shadows,
- Unlimited nested levels for groups/components export,

- UV maps support for textured objects, imported images, and FaceMe components,
- What's visible is what's exported, what's invisible or hidden isn't,
- Clay render, Glass render, Clay-Glass render, Textures & X-Ray render,
- Adjustable material properties.

1. Installation:

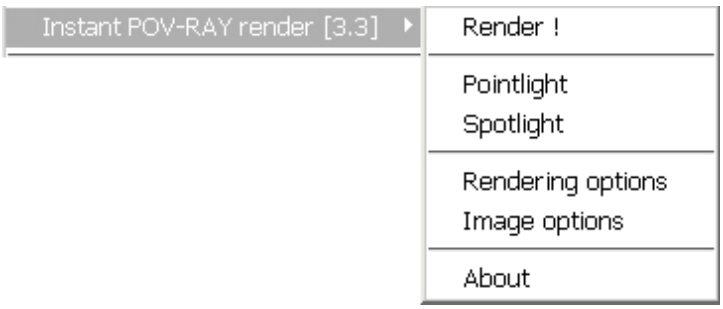
It is necessary to delete any old version if you have one installed, since file names of scripts and components are not the same: please delete previous "su2pov" sub-folder under the "Plugins" folder, and also delete any file with a name starting with "su2pov".
Unpack the Zip archive in your main SketchUp folder:



The main script "su2pov34Toolbar.rb" (that defines the toolbar and menu) is in the "Plugins" folder, the file su2pov34.rbs is there as well, and let's take a look at the "su2pov" sub-folder:

- "povray_reserved.txt" is a list of keywords Pov-Ray uses. It is loaded by the script to replace material names or object names that otherwise would cause problems. Don't delete or edit this file.
- "su2pov_wb.rbs" is the dialog box maker.
- "rad_def.inc" is a pov-ray file for the radiosity settings. Don't delete this file, because it is required in your pov-ray render files. Don't edit it unless you know what you are doing...
- the three other skp files are components loaded by the script when you insert lights, spotlights, or when the sun is visible from the observer's viewpoint. Don't delete or edit these files.

If you restart SU you'll find the following options under the Plugins menu:



And if you select the menu Display > Toolbars > SU2POV, you'll see this toolbar pop up:

The icons correspond to the five items in the menu, from top to bottom (except "About").

2. Before you begin:

2.1. You need Pov-Ray installed on your system:

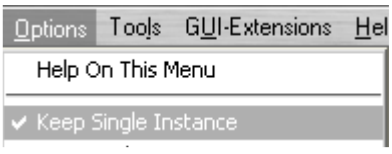
- First, download it here, selecting your platform (Win 32/64bits, MacOS,Linux): http://www.povray.org/download/

- Second, install it.
- Third, ensure that a ".pov" file is associated with the Pov-Ray executable (also known as POVWIN on Windows): browse your disk to find such a "pov" file and double-click on it. Pov-Ray interface must start and load the file.
  A "pov" file should look like this in the explorer:

  Note: for Linux and Unix users, KIO-POV is the tool to use (it's a KDE app) and can be found here:
  http://kde-apps.org/content/show.php/KIO-POV?content=26877&PHPSESSID=593b73ce52b8ca27e2d0327e3a980bf1

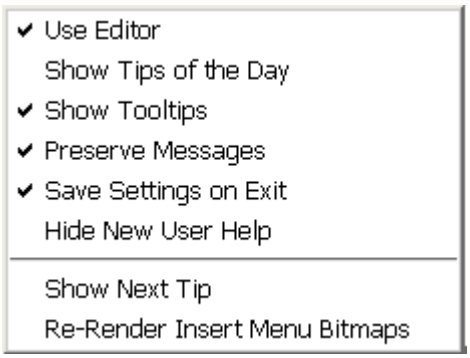
- Fourth: set Pov-Ray to work as expected: when generating renders, su2pov writes a ".pov" file each time you select "Render !" in the menu, and it opens the Pov-Ray interface with the newest file. You just have to click on the "Run" button to generate the image.

In order to have only one instance of the POV interface running at a time, go to the "Options" menu of Pov-Ray and select "Keep single instance":



Go to the "Editor" menu, select "Auto-Reload > Always":

The Auto-Reload facility (which by default is set to 'Ask') causes the editor to check the time and date of all files that are currently opened when it receives focus from another application. 'Always' means that, if POV-Ray detects that a file has changed, it will always reload it without asking you, and you just have to click on the "Run" button to start a new render.

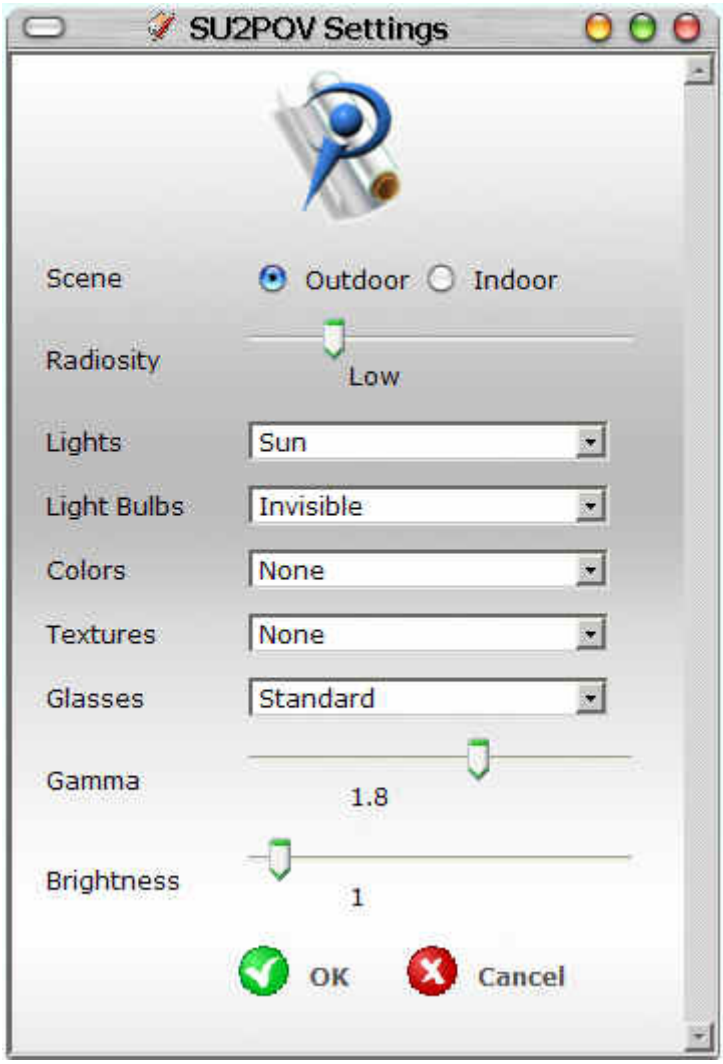


Go the Options" menu, select "Other settings" and select "Save Settings on Exit": this way you have set these options once and won't have to do it each time you use POV.

2.2. Menu options and toolbar icons:

2.2.1. Rendering options:

Selecting "Rendering options" in the menu or clicking on in the toolbar displays the following dialog box:



Scene buttons:
Select Outdoor or Indoor, depending on the actual camera location: this has an effect on the radiosity settings parameters used for the rendering.

Radiosity slider:
Five various settings for Pov-Ray the global illumination, from "Low" to "Final". Select "Low" or "Medium" when you are testing your renders, choose "Normal" or "High" to set a very accurate illumination of the scene, select "Final" only for very accurate (but slow) renders.

Below is the description of these presets, out of the Pov-ray help:

- Default: An empty radiosity block that uses Pov-Ray default settings.
- Low: make it look as good as you can, but I'm in a hurry.
- Medium: typical values for a quite fast render.
- Normal: typical standard values.
- High: high quality, can be very slow.
- Final: for patient quality freaks with fast computers about to leave on vacation.

Lights:

- **Sun**: default option. Sun light (parallel directional) is exported at day, not at night.
- **Sun and lights**: exports both the sun light and the artificial light sources, if any. This is useful for indoor day renderings when you also want to see the effect of your artificial lights.
- **Lights**: exports artificial lights only, even at day time.

Bulbs:
Set them visible to get luminous spheres on the image at the locations of the lights. Visible is default, but bulbs won't be visible if you select "Sun" for your lights setting.

Textures finish:
This is the general rendering aspect of all the textured materials (materials that use images): for each material that doesn't have a particular finish, it will have the finish you select here. (See §3.2. for setting a special finish to a material).

Colors finish:
This is the general rendering aspect of all the non-textured materials (solid colors). (See §3.2. for assigning a special finish to a material.)

Glasses finish:
This is the general rendering aspect of all the transparent materials. (See §3.2. for assigning a special finish to a material.)

Gamma slider:
The image file gamma. Default is 1.8, if you find your image too dim, use the slider to lower this value to 1.6 or even lower. If you find your image is too bright, set it to 2 or so.

Brightness slider:
This slider controls the overall brightness of the radiosity effects, and defaults to 1. Indoor renderings generally require more brightness and less gamma than outdoor renderings: brightness up to 3,4, or more, and gamma 1.4 or sometimes less.
Good values much depend on actual situation, these settings (gamma=1.8, brightness=1) can be taken as a basis.

2.2.2. Image options:

Selecting "Image options" in the menu or clicking on displays the following dialog box:

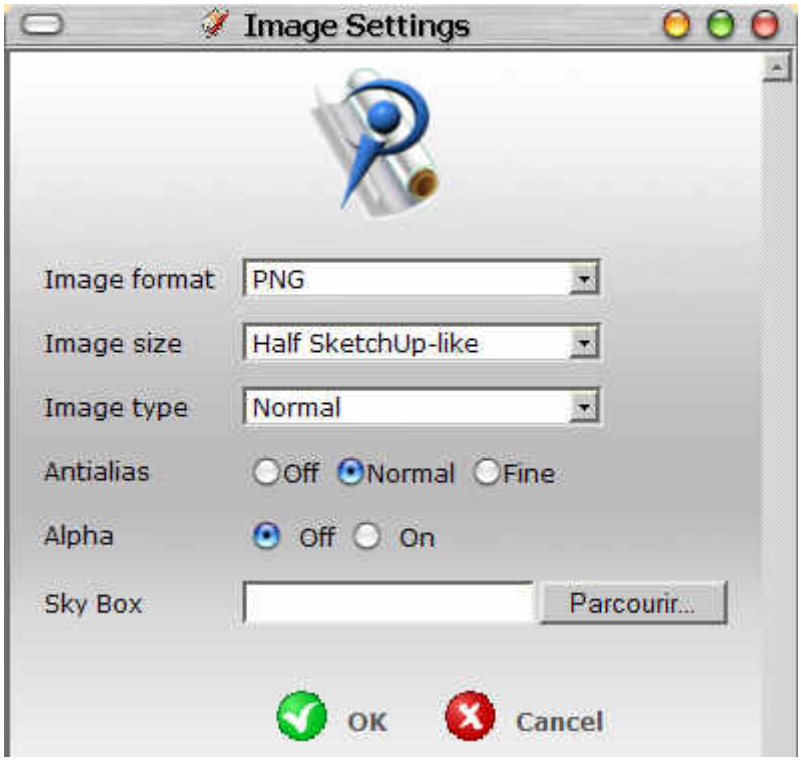


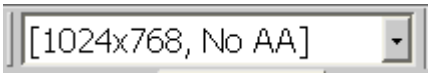
Image options dialog box

Image format:
Select the output image fomat among BMP (default), PNG, PPM, TGA compressed or uncompressed.

Image size:

- **Preset sizes**: select the image size in pixels, most common sizes are provided, ratio is indicated within the brackets.

- **Pov-Ray-like**: will let you select the image size in the POV-Ray resolutions selector, in the pov-ray interface.



The POV-Ray resolution selector

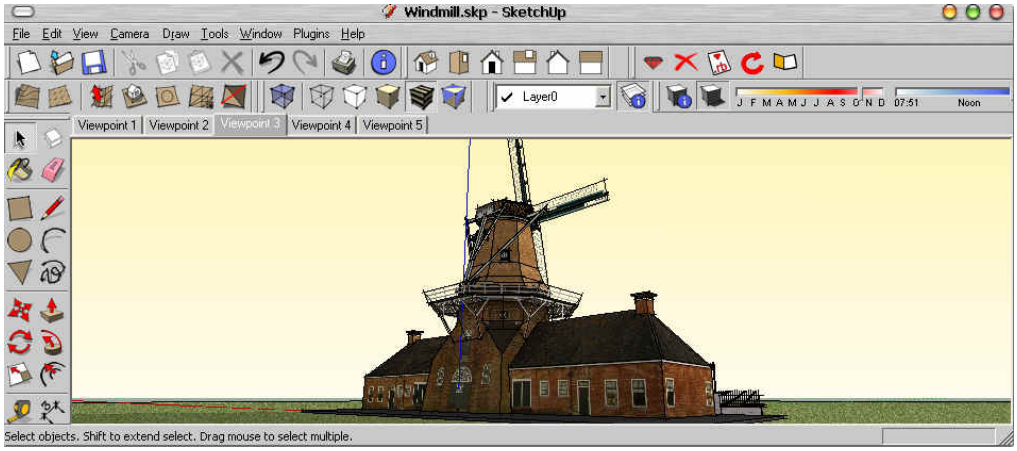
- **SketchUp-like** (default): will set the image to the same size than your current SketchUp viewport. All other common resolutions have an aspect ratio of 4/3 or 16/9, but with this option you can render square images, vertical or horizontal rectangular images of any size, just resize your SketchUp viewport.
- **Double** and **Half SketchUp-like:** same ratio as your actual SketchUp window, but respectively double and half size in pixels.

Image type:

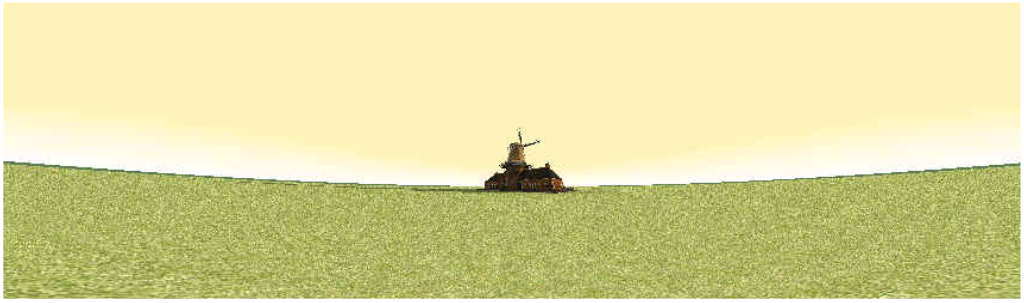
Select the image type in the dropdown list:

- **Normal**: (default) pinhole camera for perspective or orthographic views,

- **Panoramic**: cylindrical equirectangular projection for panoramic views. It is a good idea to combine this type of image with an image size with the same size as your SketchUp window, for instance like this:


Windmill.skp - SketchUp
File Edit View Camera Draw Tools Window Plugins Help
Layer0
Viewpoint 1 Viewpoint 2 Viewpoint 3 Viewpoint 4 Viewpoint 5
Select objects. Shift to extend select. Drag mouse to select multiple.

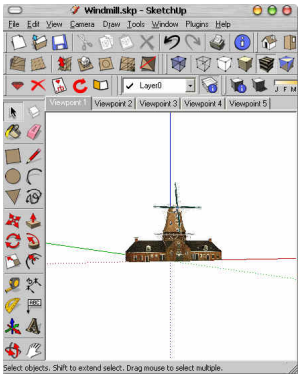
SketchUp window



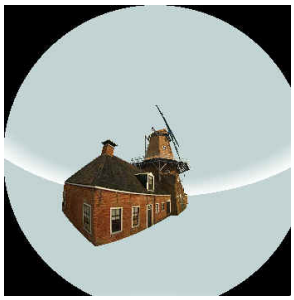
Resulting image

- **Cylindrical**: using this projection the scene is projected onto a vertical cylinder, It is a good idea to combine this type of image with an image size set to the same size as your SketchUp window:

- **Spherical**: when using this projection the scene is projected onto a sphere (good for QT views). It is a good idea to combine this type of image with an image size with the same size as your SketchUp window, with square proportions, just like this:


Windmill.skp - SketchUp
File Edit View Camera Draw Tools Window Plugins Help
Viewpoint
Viewpoint 2
Viewpoint 3
Viewpoint 4
Viewpoint 5
Select objects. Shift to extend select. Drag mouse to select multiple.

- **Fisheye**: This is a spherical projection, you should get a circular image:



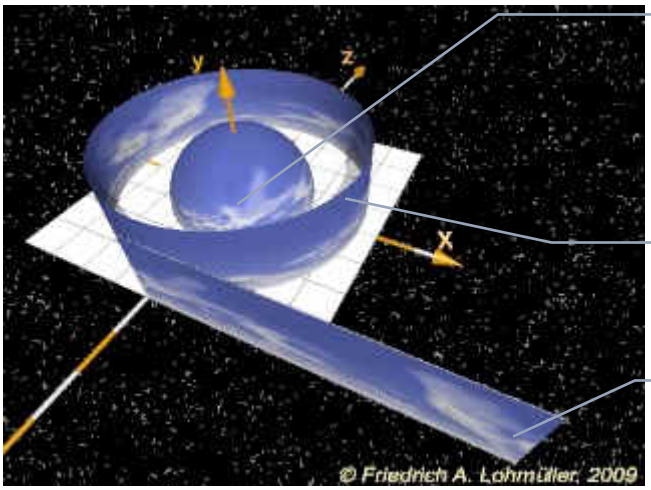
Antialias:
Sets antialiasing "Off", "Normal" (default), or "Fine". Normal is an antialias of depth 3 (9 samples per pixel) and "Fine" uses a recursive method of depth 4 (16 samples per pixel). Use antialias when image size is small, "Normal" is convenient in most cases. Don't use "Off" unless your image size is greater than 2000 pixels wide.

Alpha channel:
When "On" , sets the output of the background as transparent pixels. Default is off.

Example of an orthographic view, no shadows, alpha channel on

Skybox:

What is a skybox (or skydome) ? It is a big hemisphere with a 360° image of a sky ("skymap") mapped on the inside of this hemisphere. The model stands at the center of the hemisphere. Changing the camera (point of view) in your 3D model doesn't need any change of the skybox, you'll automatically get another part of the sky as background in the rendered image.



Equirectangular image mapped on a hemisphere (or sphere). The 3D model is inside the hemisphere.

Equirectangular image mapped on a cylinder

Equirectangular image

To use a skybox as background in your render, click on the "Browse" button to choose a skybox image (the label on the button should be in your browser's language).

JPG,PNG,BMP,PPM,TGA images are allowed.
Leaving this field blank sets no skybox, the current SketchUp background will be used instead (solid or gradient color).

The skybox has a great influence on the overall lighting of the scene, since the image is mapped onto the sky hemisphere on which light bounces to and from the 3D model. On these images, a blue skybox and a sunset skybox have been used, note the grey-blueish and pink-orange tones on the white coating of the walls for instance.

Some high resolution panoramic skyboxes can be downloaded here:
http://blenderartists.org/forum/showthread?t=24038

3. Quick start:

You also will find in the Plugins/su2pov/Tutorial folder, a SketchUp model named "windmill.skp".
Move it to your desktop and double-click on it to start SketchUp or open it from SketchUp if it is already running.
This is a file downloaded from the 3DWarehouse that have been edited a bit. The original model is "The Mill of Roderwolde" by janhin and can be downloaded here.
Here is a photo of the real one:

There are 5 scenes in the SketchUp model, each one with a different camera and style.

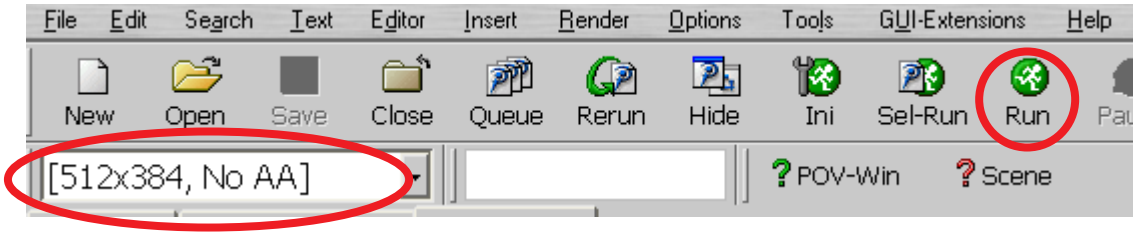
Render #1:

Click on the tab "Viewpoint 1" if it is not selected.

The scene has no ground, no sky, there is only the model on a white background.
Select "Instant POV-RAY render [3.4]" of the Plugins menu and click on "Render !".
The "POV File" dialog pops up. Accept the file name that is proposed and click on the "Save" button.
Watch the status bar at the bottom-left of your SketchUp window while the script is running.

The export is pretty quick and if Pov-Ray is correctly installed on your system, it will fire-up and load the new generated file. *(See § 2.1 for information on Pov-Ray settings).*

Select a size for your render in the left dropdown list: "512x384, No AA" will be enough and rather quick for tests. Click on the "Run" button to start the render.

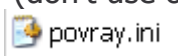

File Edit Search Text Editor Insert Render Options Tools GUI-Extensions Help
New Open Save Close Queue Rerun Hide Ini Sel-Run Run
[512x384, No AA]
POV-Win
Scene

You will obtain this, or something similar, depending on your viewport size:

Now let's have a look to the Desktop (or to the Tutorial folder) to see what happened there:

Beside the SKP file, a new folder "Windmill" has been created, its name will always be the same as the SketchUp model itself. Here is a snapshot of an Explorer window, of the "Windmill" folder contents:

The original textures names have been changed to suit Pov-Ray needs and syntax. Their formats are the same than the original textures (embedded in the SketchUp materials), but remember that only gif,tga,iff,ppm,pgm,png,jpg,tiff formats are supported in Pov-Ray (don't use other formats for your textured materials).

You also will find a 

file in this folder. This file contains the rendering parameters and image options. These options are saved within the SketchUp file and loaded when the model is opened.
When you open an new SketchUp model, or a model that has never been rendered, default options are set. When you open a model that has already been rendered, the last options you used are set.

Zoom in the scene and change the field of view of the camera, like in the left image below.
Go to the Plugins menu and select "Render !", or click the render icon.

The exporter runs again and the updated file is re-loaded in Pov-Ray *(See §#2.1 for information on how to do this automatically)*.

Hit the "Run" button on the Pov-Ray interface and you will obtain the image on the right:

SketchUp *Pov-Ray*

As you can see, moving the camera and changing the field of view is immediately taken into account.

Render #2:

Switch to the SketchUp window and click on the "Viewpoint 2" tab.

This scene includes a gradient blue background, the camera is closer to the windmill, looking upwards, and shadows are on.

Go to the Plugins menu and select "Render !" or click on the render icon. The exporter runs again and the updated file is re-loaded in Pov-Ray.

Click on the "Run" button again to start the new render. You should obtain the image below:

Let's compare this render with the SketchUp display:

The main difference here is the alpha channel support through the PNG textures. Look at the shadows of the vanes on the windmill body for instance and at the shadows of the wooden deck as well.
As you can see, the gradient background of the SketchUp scene has been exported with exactly the same color in Pov-Ray, as the solid background color was also exported in render #1.
When the background in SketchUp is a solid color, it is exported as is to Pov-Ray. When the style of a scene has the sky checkbox selected (creating a gradient sky), you'll also get a gradient sky in Pov-Ray.

Note: Your SketchUp viewport is probably not 512x384 pixels, this means that the Sketchup camera aspect ratio is not the same than the Pov-Ray one. That's why the view and field of view of the Pov-ray camera is also different.

Render #3:
Switch to the SketchUp window and click on the "Viewpoint 3" tab.
This scene includes a gradient yellowish-pink background, the camera is behind the windmill, it is late in the afternoon. A layer containing the grassy ground and the front wall is added. The SketchUp ground is also visible at the horizon.

Go to the Plugins menu and select "Render !". When the new render file is loaded, click on the "Run" button, you should obtain this:

Sun automatically changes the color of light at sunrise and sunset and the amount of light as well.
At sunrise the light is cold yellow, at sunset it is more orange-pink.
The textured ground and the entrance wall have been rendered, this means that the script exports all visible objects or layers in the SketchUp window: if a layer is not

active, all objects on this layer won't be exported. If an object is hidden, it is not exported as well.

Switch back to the SketchUp window and move the camera around the windwill to have a point of view like on the left image below:

SketchUp

Pov-Ray

Go to the Plugins menu and select "Render !". When the new render file is loaded, click on the "Run" button, you should obtain the image on the right.
Note that the sun is visible, at its exact azimuth and height in the sky.

Now move the camera in front of the building, looking straight down from the air. Click on the icon to set shadows display off.

Go to the Plugins menu and select "Render !". When the new render file is loaded, click on the "Run" button, you should obtain this image:

The sun light has been replaced by an ambient white light, so there are no more shadows. Remember that to activate the sun and shadows, shadows display must be on in SketchUp.

In SketchUp, double-click on the "Viewpoint 3" tab to retrieve the original viewpoint, and open the fog dialog. Set and display a fog like this, same color as the background:

Go to the Plugins menu and select "Render !".
When the new render file is loaded, click on the "Run" button, you should obtain the image on the right:

SketchUp

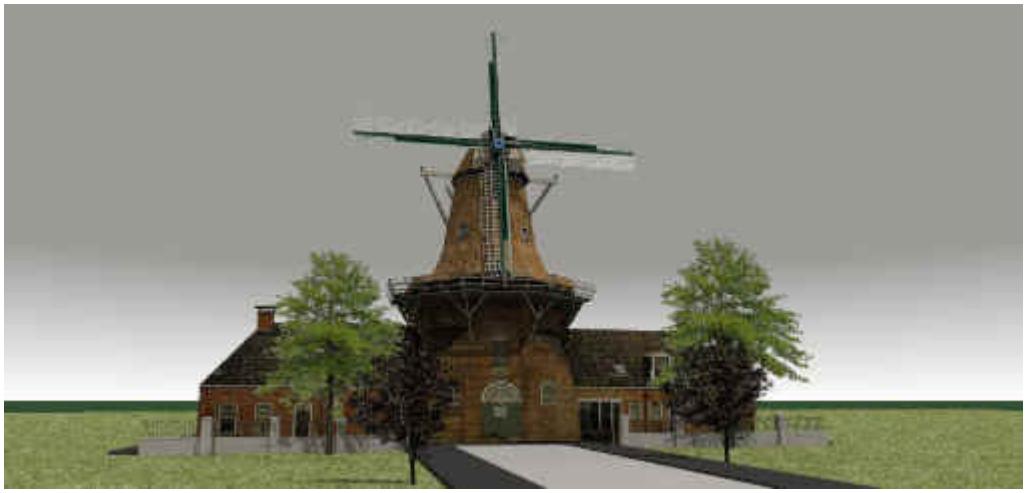
Pov-Ray

Fog color and fog distances are exported almost exactly as they are set in SketchUp there are no "fog start" and "fog end" distances in Pov-Ray, just a distance at which the fog is at 100%.

Render #4:

Switch to the SketchUp window and click on the "Viewpoint 4" tab.
We are now in front of the windmill, a layer with trees is active.

In the shadows toolbar, click on the shadows settings icon .
We are on July 7th, 11H01, the "Light" slider is on 40, the "Dark" slider is on 60.
A render with these settings would give this:

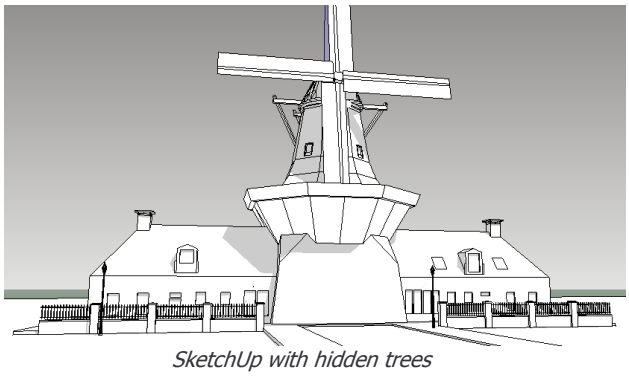


Click on the shadows settings icon , and set the day to April 13th, 16H00. Set the "Light" slider to 95 and the "Shadows brightness" slider to 80.
Double-click on the central road group and paint it with a texture, say "Pebbles". Click outside the group to stop editing the group.
Go to the Plugins menu and select "Render !". When the new render file is loaded, click on the "Run" button, you should obtain this:

As you can see, the shadows settings and sun direction are just as you set them in SketchUp. Also note that the sun illumination is brighter and the shadows darker than they would have been if you didn't change the shadows settings: a clearer sun gives more "power" to the sun light, and darker shadows as well, with more contrast. The asphalt texture change is also visible, of course.

Now click on the "Hidden Line" render mode icon in SketchUp. Your SketchUp window should look like the image on the left below. As you can see, "FaceMe" components are displayed as flat rectangular faces, and would be rendered like that in Pov-Ray as well. So in this case it will be better either to hide such components or to use 3D trees components instead.

Go to the Plugins menu and select "Render !". When the new render file is loaded, click on the "Run" button, you should obtain a "clay render" like on the image on the right.

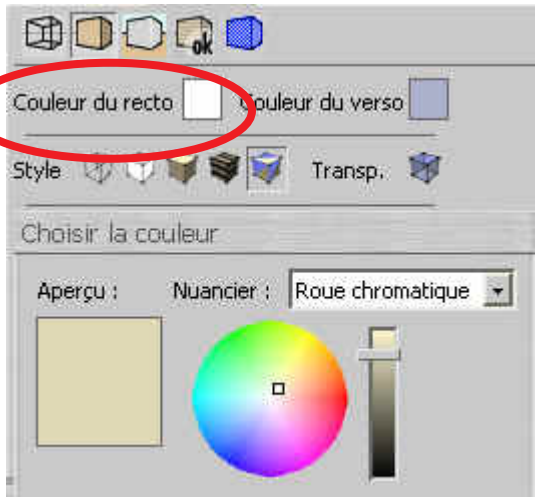


SketchUp with hidden trees

Pov-Ray

A clay render can also be obtained with the "monochrome" render mode .

Note that the color of the default material of the style of the current scene is exported and used for the clay render:



would render:

Click on the "Shaded with textures" icon and on the "X-Ray" icon

Your SketchUp window should look like the image on the left.

SketchUp

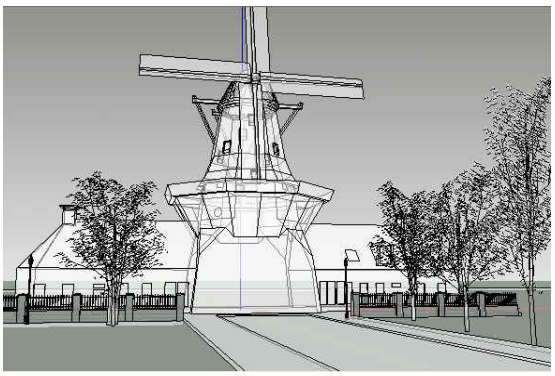
Pov-Ray

Go to the Plugins menu and select "Render !". When the new render file is loaded, click on the "Run" button, you should obtain a transparent render like on the image on the right.

Activating the X-Ray render mode in SketchUp outputs a "Glass render". The "finish" of all textures has been changed, making them all transparent, using the glass finish that is set in the "Rendering options" dialog box (see §4).

Clay render and glass render can be combined:

Click on the "Hidden line" icon to switch off textures
Your SketchUp window should look like the image on the left.
Go to the Plugins menu and select "Render !" When the new render file is loaded, click on the "Run" button, you should obtain a "clay-glass render" like on the image on the right:


SketchUp

Pov-Ray

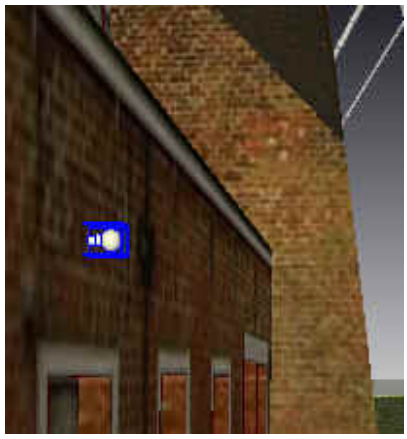
Render #5:

Switch back to the SketchUp window and click on the "Viewpoint 5" tab.
This scene is a night scene with a gradient dark-gray background. Take a look at the shadows settings: it's 5PM, November 8th in the Northern hemisphere. So it's night...

Sun is automaticlly "shut off" at night. There are some point lights in this scene: one in each street lamp and one above a window on the main wall near the corner of the main building. By default, the script doesn't export artificial lights, so you must tell it to do so: go to the menu and select "Rendering options".
Select "Lights" in the "Lights" dropdown list, select "Bulbs" "Visible", and click "OK".
Go to the Plugins menu and select "Render !". When the new render file is loaded in Pov-Ray, click on the "Run" button, you should obtain this:

You get a starry night because of the gradient background of SketchUp. If you don't want stars in the sky, just modify the style of your scene to display a solid dark background.

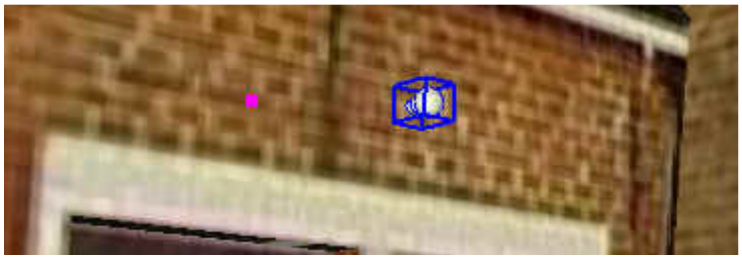
Modifying a light:



Artificial lights are put on a layer named "su2pov".

Go to the "Layers" window and make the layer "su2pov" visible if it isn't.
Zoom to the corner of the building and select the light bulb.

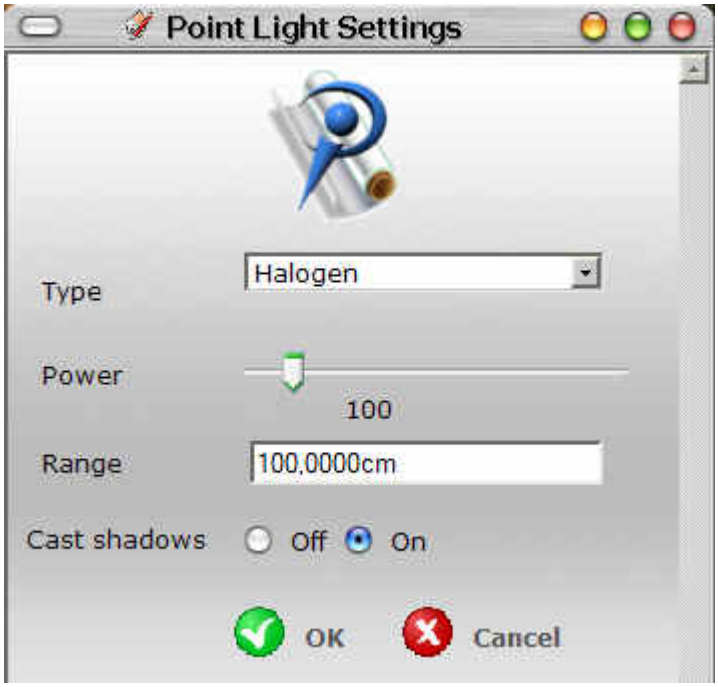
Move it along the wall with the move tool until it is above the door:



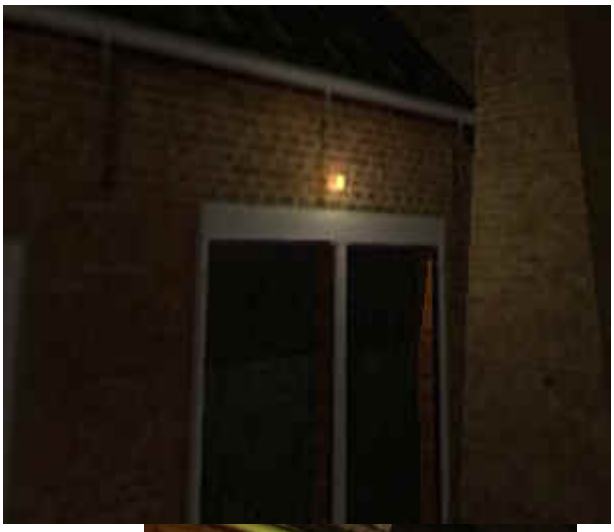
Note that lights must be slightly offset from walls or surfaces. This is done automatically by the script when you insert lights.

This one is an incandescent pointlight of 60W. Keep it selected and right-click.

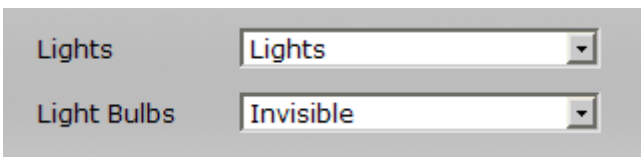
Select "Edit Point Light" in the context menu and change the values:



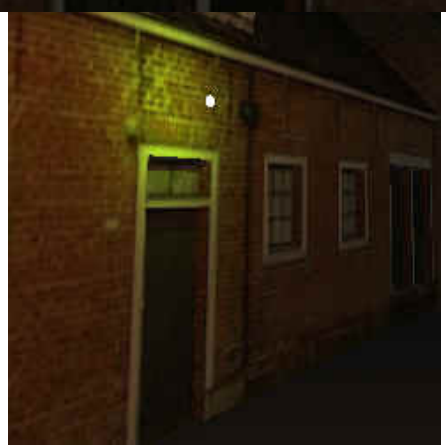
The color of light depends on the light type, here a halogen is whiter than the previous incandescent light. The "Range" value is the distance from the light bulb at which the light completely fades away:



Artificial lights bulbs are visible by default. If you want not to see the bulbs set them as invisible in the main rendering options dialog:



If you want to give the light a completely different color than the default types, just paint it with the paint bucket, overwriting its default color:



Paint it without editing the component itself, just drop a color on it when it is selected.

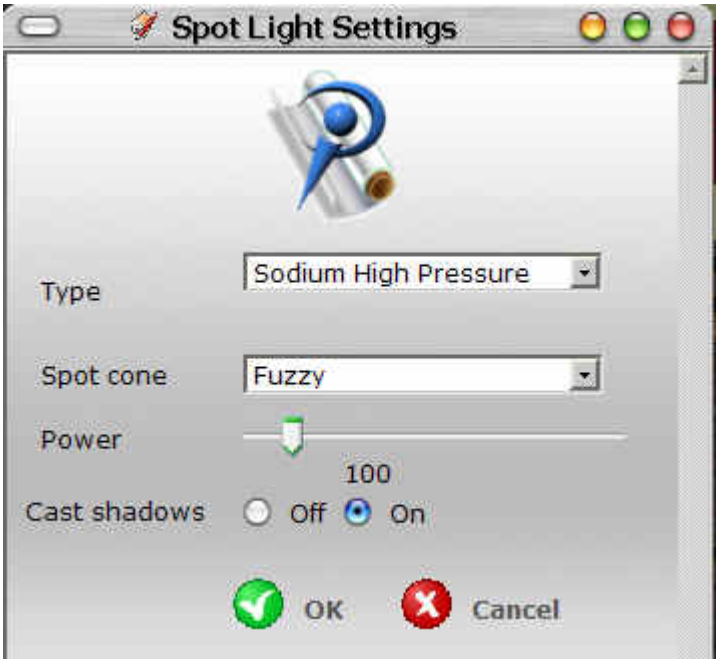
Deleting a light:

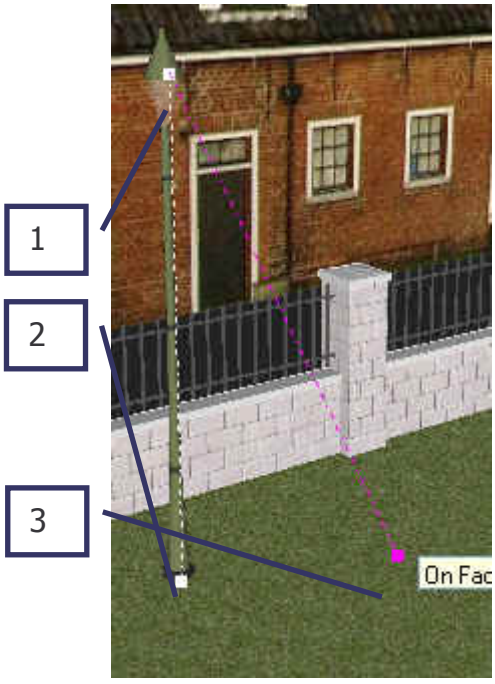
Now zoom at the street lamp and select the light bulb with a window capture.
This is a sodium 100W light. Delete it just like any other object.

Adding a spot light:

Now let's insert a spot light in the street lamp: select 'Spotlight" in the menu, or click on the icon.

Select a light type, for instance a sodium 100W light with an extensive light cone to create fuzzy edges between light and shadow:





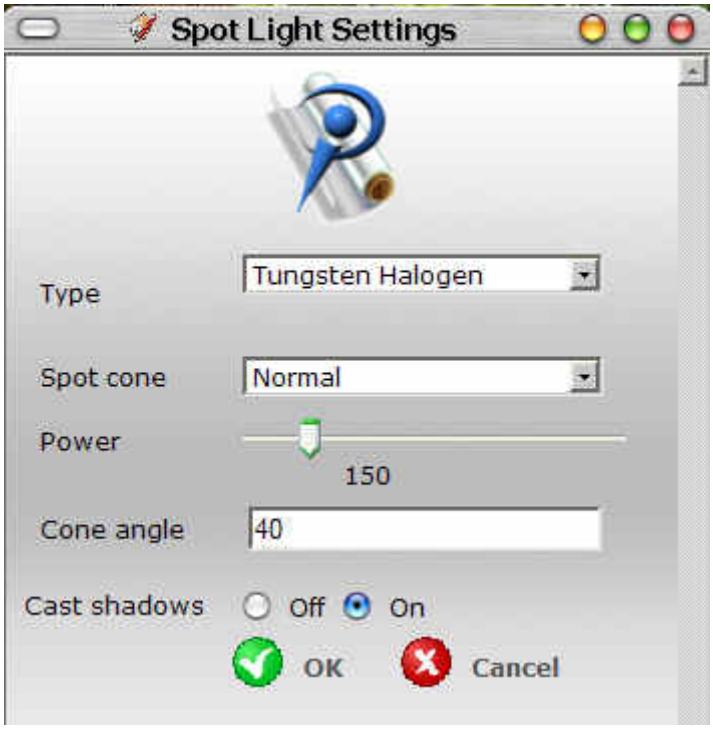
Click a point at the location of the spot bulb (1), click a second point to orient it (2), and finally a third point to define the aperture of the light cone (3).

Here is the render of such a spot, seen from above:

Use the "Rotate" tool and the "Move" tool to orient, move or copy your spots, use the paintbucket tool to give them different colors.

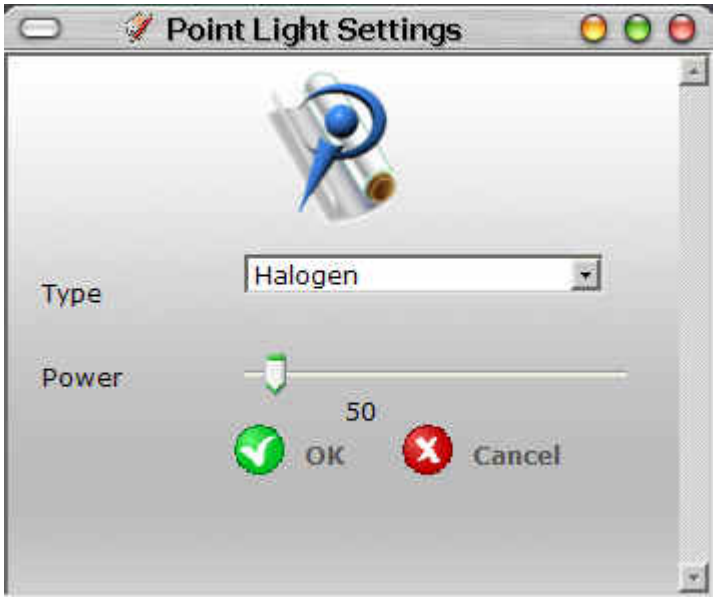
Changing spot properties:

Select the spot, right-click and select "Edit Spot Light" in the context menu. The current properties of the spot are displayed in the dialog box, choose other properties: change power, cone angle, and click OK.



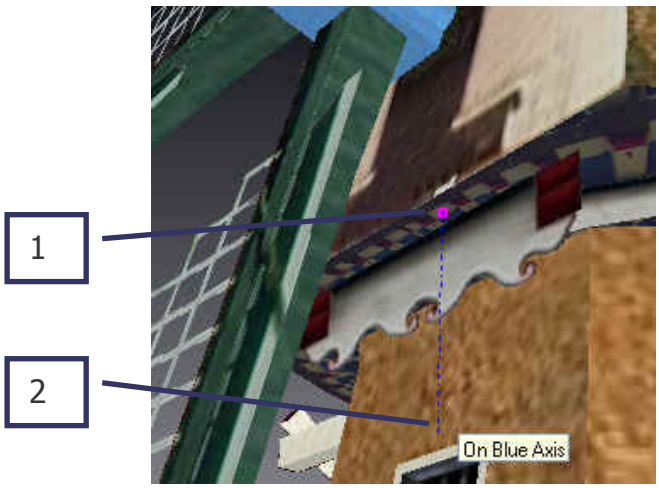
Adding a point light:

Zoom to near the roof of the windmill and select "Point Light" in the menu.
Choose the properties of the light in the dialog box:

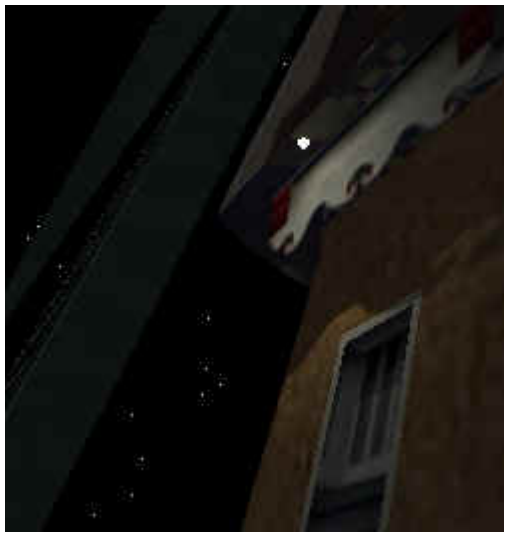


Click a first point to set the light position (1) and a second point to define its "range" (2).

The light is slightly offset from the point you clicked in order to correctly locate the light emission point (neither inside the face nor on it).



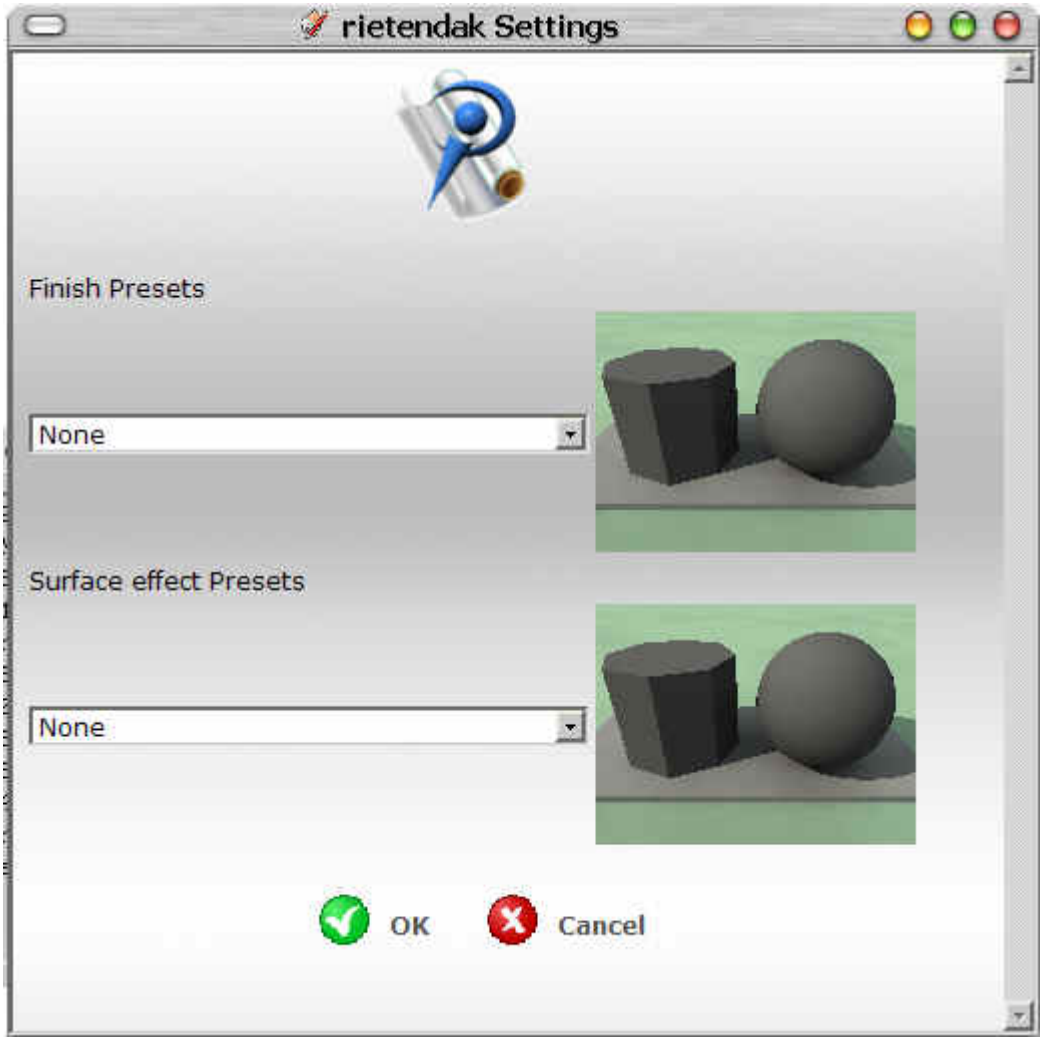
Here is the resulting render:



4. Adjusting the aspects of your Pov-Ray materials:

A material in Pov-ray can be rather complex. Many parameters and combinations of these are available and the possibilities infinite. In version 3.3 of su2pov, you could tweak the aspect of a particular material within SketchUp, through a set of parameters (diffuse, ambient, specular reflection, roughness, graininess, bumps) so this material will have a particular finish in Pov-Ray.
These parameters seemed too complex for the average user, so they've been simplified with the use of presets of two kinds, which can be applied to any material: a "finish" and a "surface effect".

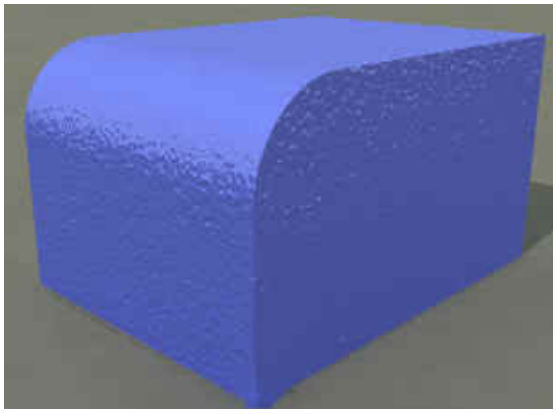
To assign a finish or a surface aspect or both to a material, right-click on a face painted with the material you want to adjust and select "Edit Pov-Ray finish" in the context menu.
This dialog box will pop-up to adjust the finish (top list) and the surface aspect (bottom list). Note that the current material name is displayed in the title bar:



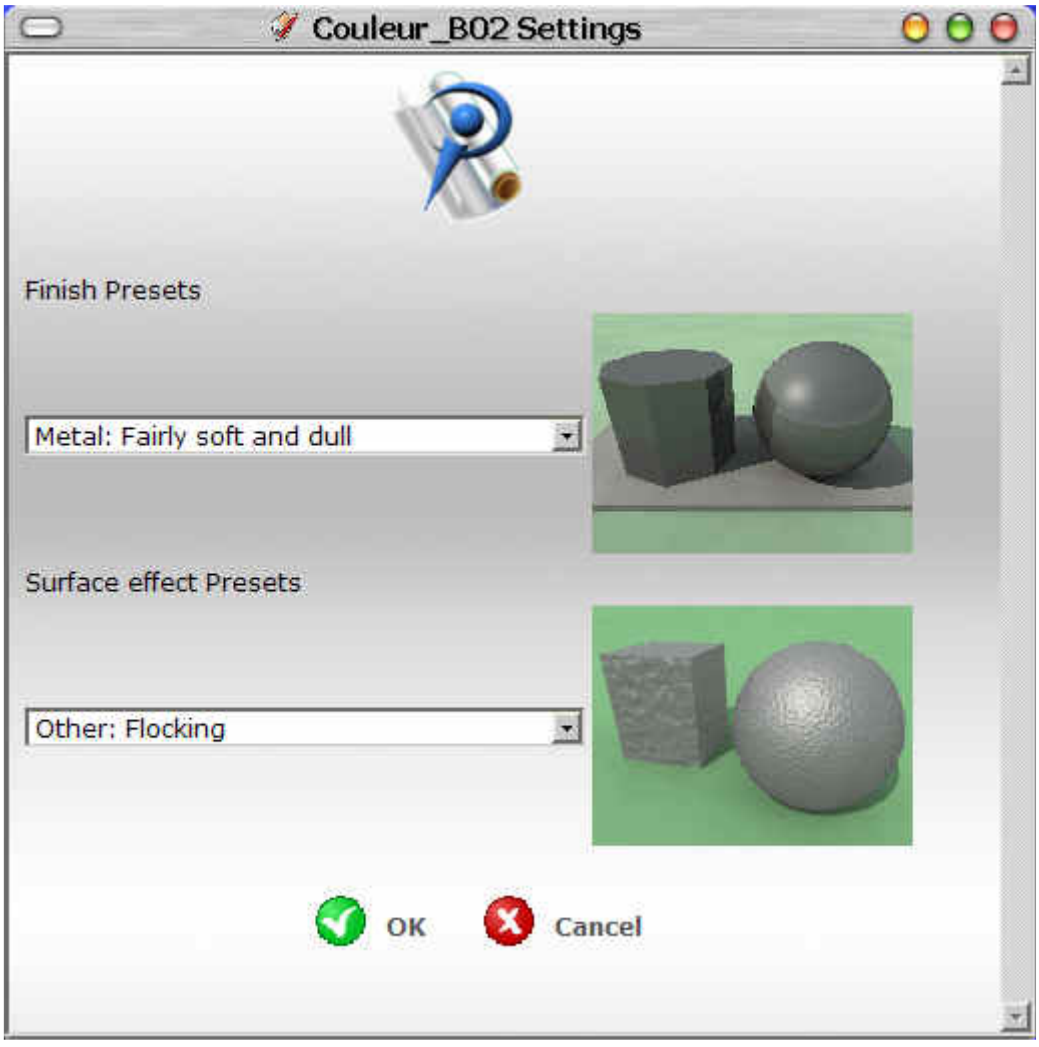
Both defaults are "None": if you leave them as is, the finish and surface aspect applied to this material will be the one you have selected in the main rendering settings. Or:

- Select a finish: it controls the way light will be absorbed, reflected, refracted by the material.

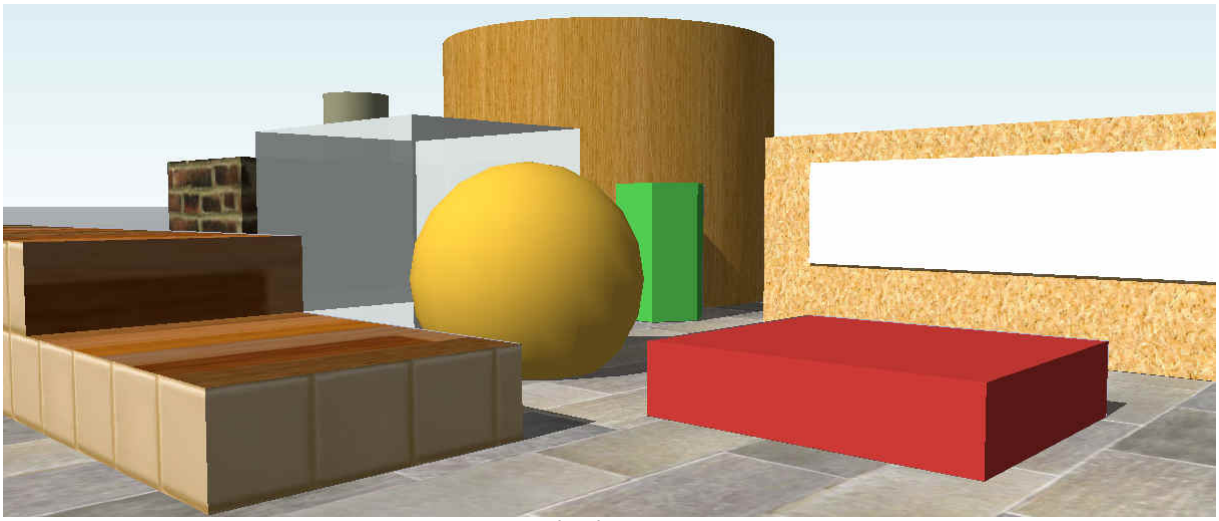
- Select a surface effect: it controls the way light bounce locally on the material of the object (also known as "normal perturbation"). You can achieve a wide variety of aspects, giving the feeling that the shape is more complex than it is.



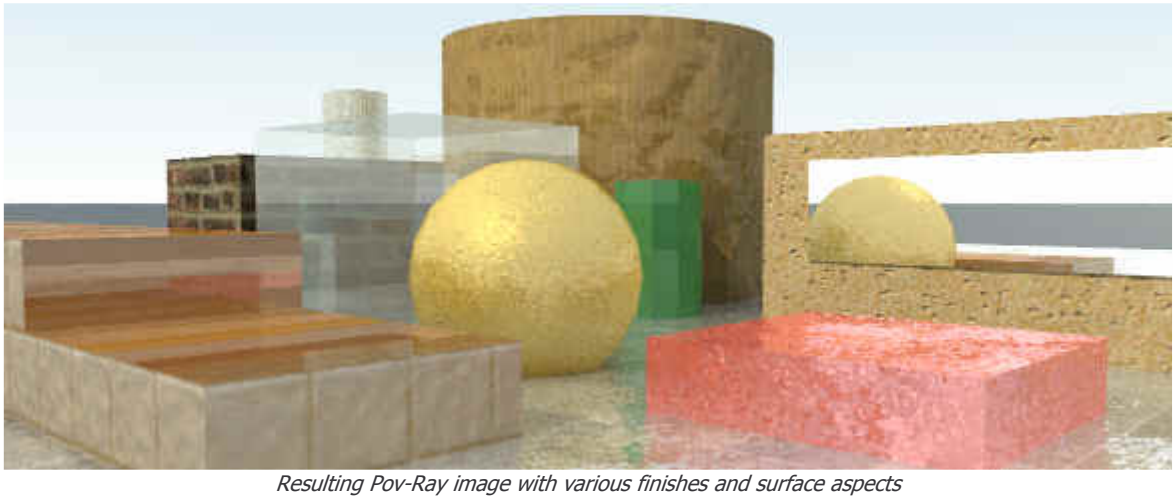
For instance this box has a blue solid color material, and the metallic finish "Fairly soft and dull", along with a surface aspect "Flocking":



Either it is a textured material or a solid color, these adjustable properties only concern the final aspect of the material, not its color or texture.



SketchUp view



Resulting Pov-Ray image with various finishes and surface aspects

Notes:

- All the material settings are saved within the model for later use.
- To delete a material finish, select a face with the corresponding material, right-click and select "Remove Pov-Ray finish" in the context menu.
- To start all over, select "Remove all Pov-Ray finishes in the context menu. This will reset all material finishes to default, but doesn't affect the global rendering settings.

5. Using images in SketchUp:

Su2pov can export exploded images (used as materials) or non-exploded images (used as images).
It also supports face-me components made of images.

Open the SketchUp model "Plugins/su2pov/Tutorial/su2pov/ su2pov _house".

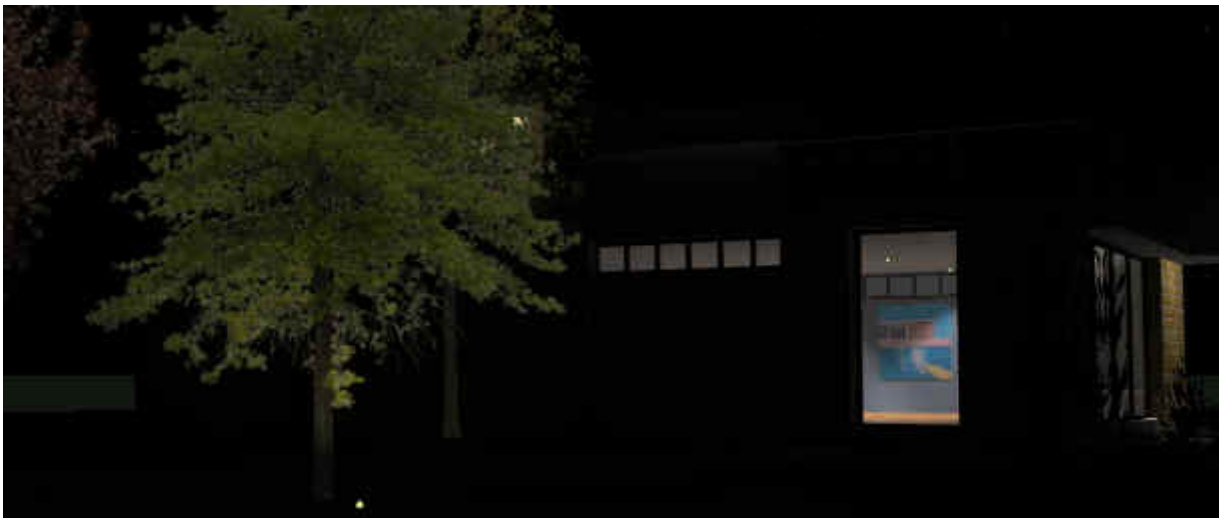
Hit the "Outdoor_1" tab: this is a day render, trees are face-me components made of PNG images with an alpha channel.
Click on the render settings icon. Gamma is 1.8 (default) and brightness is 1.8 too. Radiosity is set to "medium", the background is a light blue and shadows are on.
Click on the image settings icon: image format is PNG, size is set to half your SketchUp viewport size, antialiasing is "normal" and alpha channel is off.
Click on the render icon, accept the suggested file name for the output Pov-ray file.

Watch the status bar to see what the script is doing and after a few seconds, Pov-ray is launched.
Click on the "Run" button. You'll get the below rendered image:

Hit the "Outdoor_2" tab: this is a night render. There are a few lights in the house, and a spot light has been put on the ground in front of the foremost tree.

Set the rendering options to render only "Lights", set the bulbs to "visible", lower the brightness back to 1, resize your SketchUp window to approximately 1150x650, set the image options to output a PNG format, Half SketchUp-like size.

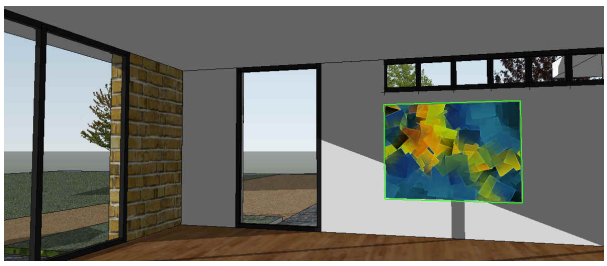
Hit the render icon, and you'll get this result:



Click on the "Outdoor_3" tab for a sunset render.
Set the rendering options to render " Sun and lights".
Hit the render icon, and you'll get this result:

Hit the "Outdoor_4" tab: this is a night scene. Set the rendering options to render only "Lights", with visible bulbs, and set the default finish to "None" for colors and textures (this will enlighten a little all faces in the dark, that is better for night renderings). Hit the render icon, and you'll get this result:

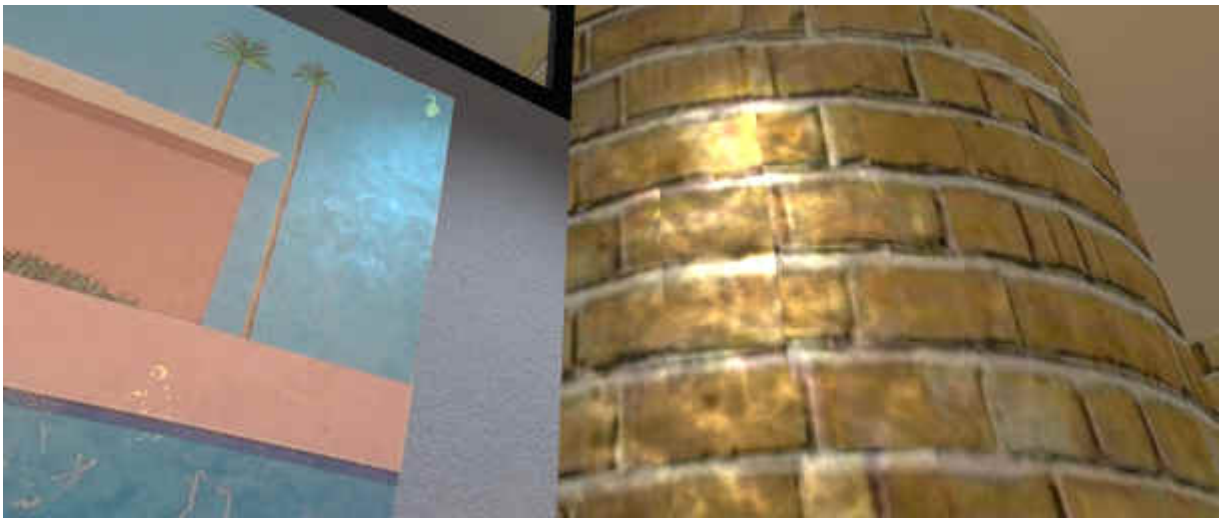
Using images imported as images or textures (materials):
Now to the point: images. Click on the "Indoor_1" tab.
Import the image "Plugins/su2pov/Tutorial/drifting_planes.jpg", click on the wall and scale it as needed.



Set the render settings to "Indoor", hit the render icon and when the pov-ray file is ready, click on the run button. As you can probably see, the image is not visible or only a part of it is visible. That's because two faces are exactly in the same vertical plane (the wall and the imge), so the render doesn't know which one to display. Back to SketchUp, unglue the image from its face and move it just 1 or 2cm out of the wall to prevent this bad artefact. Set the brightness to 2. Export the render file again and you'll get this result:

Click on the "Indoor_2" tab.
Right-click on the image on the wall and explode it. Export the file and render it. As expected, images can be used either as "real" images of the SketchUp model, or used as materials in the SketchUp model:

Click on the "Indoor_3" tab. This is a close-up near the fireplace.
Right-click on the blue wall and select "Edit Pov-Ray finish". In the dialog box, don't select a finish preset, but select a surface aspect "Minerals: Fine Coating".
Right-click on the brick wall and select "Edit Pov-Ray finish". In the dialog box select "Metal: Very soft and dull" for the finish, and select a surface aspect "Minerals: Mud".
Right-click on the image on the wall and select "Edit Pov-Ray finish". In the dialog box select "Metal: Medium reflectivity" for the finish, and select a surface aspect "Metals: Galvanized".
Set the rendering options to use only artificial lights, and set scene type to "Indoor" and radiosity to "Low".
Hit the render icon, this may take a while until you get this:



Bricks are "bumped", the image looks more like a painting and the blue wall has some grain.

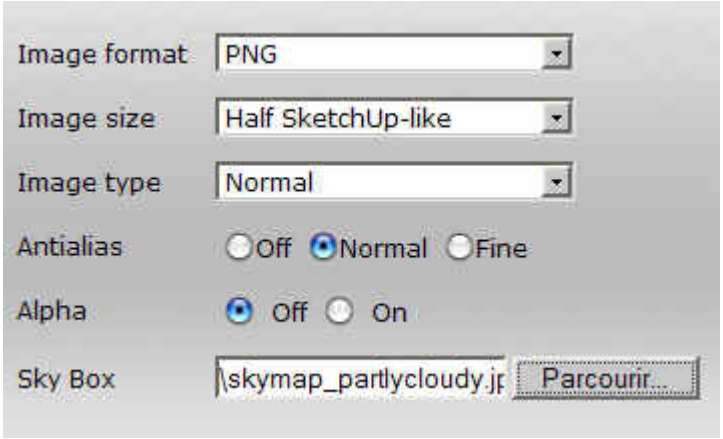
Presets are intended to simulate the material that their names evoke (metals, minerals, etc) but often you can achieve good results to simulate other materials: for instance, although there are water surface aspects available, this water was obtained with a simple face in SketchUp (pointing upwards), painted with the stock material " Translucent_Glass_Sky_Reflection".
Pov-Ray presets have been added: finish "Glass: clear, medium reflectivity" and surface aspect "Minerals: Mud" (for the ripples effect). The surface aspect "Other: Flocking" can also do the job, as well as "Other: Oil stain".

Easing up the translucency of the SketchUp material and changing the finish preset to "Metals: medium reflectivity" would give this result (the color of the reflected light seen on the water surface depends on the color of the sky sphere).

Note that adding finishes and surfaces aspects to SketchUp materials may sometimes increase the rendering time significantly, especially when reflecting finishes are used with surface aspects.

Click on "Water" tab, this scene is a close-up near the water pool. Double-click on the pool group, select the water surface, right-click and select "Edit Pov-Ray finish" in the context menu. Give the material a finish "Glass: Clear, medium reflectivity" and a surface aspect "Water: Riddles".
Render the scene and you'll get this:

Using a skybox:
Click back to the "Outdoor_1" tab.
Click on the image settings icon. Click on the "Browse" button (or similar in your own language) at the bottom-right of the dialog. A file select dialog pops up. Browse your disk to find the file "skymap_partlycloudy.jpg", it should be in the Plugins/su2pov/Tutorial folder. Select it and click on the "Open" button (or similar in your own language). The dialog should look like this:



The skybox image can be anywhere on your hard drive, since the script saves the absolute path to retrieve it when it needs it (but a good idea is to move or copy the image to the folder of your pov-ray model).
Using a skybox is a persistent option. To revert to an usual background without skybox, just click on the image settings icon again: the skybox field is blank, leave it blank and click the OK button.

6. Known issues:

Materials: sometimes faces of nested components or groups will receive the wrong material or texture, especially when components or groups are painted globally. If this happens, just explode the group or component involved, this should do the trick.

Textures formats:
Sometimes the TextureWriter object of the Ruby API exports a texture at the wrong format: if you have a material which uses a BMP texture for instance (especially with

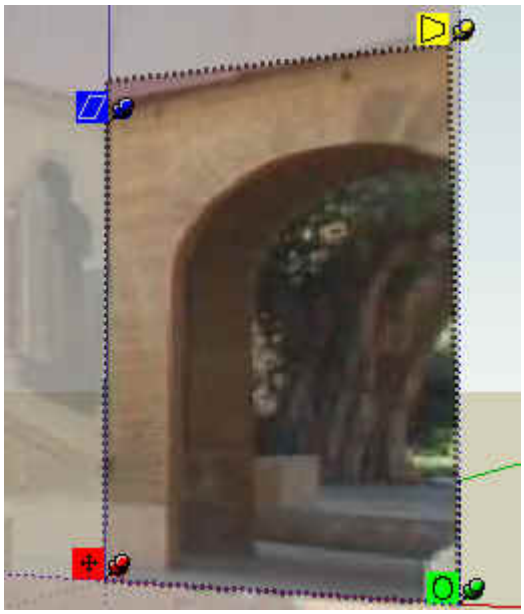
an alpha channel), the texture file is exported at PNG format... The script tries to solve this problem, but sometimes can't.

Textures, components, groups and images names:
The script changes the names of the textures and images to suit Pov-Ray syntax (which is rather sensitive). It also changes most commons letters specific to some languages (é,è,à,ë,ù,ç,etc). When using UTF8 very special letters (such as Õ,Å,ą,ę,Ñ, etc) the system raises an error when trying to rename the texture files. A message is displayed when this occurs, with the file names involved.
As a general rule, avoid local languages specific letters (such as Õ,Å,ą...), don't name your materials with double dots (such as "my_material.wall.south"). Same applies to groups and components names.

Bad UV mapping:
This happens when the texturing in SketchUp (may appear good) is done with the pins not exactly anchored on corners of a face. Texture may even be distorted or completely twisted.

Good UV mapping

Pov-Ray result



Bad UV mapping
(blue pin not on vertex)

Pov-Ray result